5. CLOSURE PLAN

5.1. Closure Plan Goals

The area of contamination repository (AOC) will contain soil contaminated with pentachlorophenol and fuel oil. Chemical and physical properties of the materials are included in the material safety data sheets (MSDS). MSDS are included in the Appendix. The closure plan is designed to meet the requirements of 264.310. Applicable goals of 264.310 that relate to this closure are as follows:

1. Provide long-term minimization of migration of liquids through the closed repository
2. Function with a minimum of maintenance
3. Promote drainage and minimize erosion or abrasion of the cover
4. Accommodate settlement and subsidence so that the covers integrity is maintained
5. Have a permeability less than or equal to the permeability of the bottom liner or natural subsoil

The closure plan is designed to accomplish the following tasks in order to meet the goals of 264.310 listed above.

1. Remove PCP/PAH soils from the pole yard that exceed the Region IX Industrial PRGs for PCP/PAH thereby, reducing the exposure risk for human contact and fugitive emissions to acceptable risk based industrial standards
2. Provide a repository for pole yard soils that exceed the Region IX PRGs for industrial soils.
3. Construct a repository within the AOC that safely contains the PCP/PAH soils
4. Cap and cover the repository to stop infiltration of precipitation through PCP/PAH contaminated soils.
5. Contain the contaminated soils in a repository to eliminate any future human or animal contact with PCP/PAH contaminated soil.

The following sections describe the procedures and plans for remediation of the pole yard, creation of the repository and construction of the cap and cover at the site.

5.2. Pole Yard Remediation

Soil in the pole yard will be removed to levels which meet 1.0 E-05 risk in accordance with Region IX Industrial PRGs for PCP/PAH. The Industrial PRGs are as listed in the Table 5-1.

Table 5-1 EPA Region IX Industrial Preliminary Remediation Goals for Soil

Parameter	Industrial PRG (mg/Kg)	Min. Detection Limit (mg/kg)
Pentachlorophenol	90.0	2.0
Acenaphthene	120000.0	0.040
Anthracene	100000.0	0.040
Benzo(a)pyrene	0.21	0.040
Benzo(b)fluoranthene	2.10	0.040
Benzo(k)fluoranthene	21.0	0.040
Benzo(a)anthracene	2.10	0.040

Chrysene	210.0	0.040
Fluorene	26000.0	0.040
Fluoranthene	22000.0	0.040
Naphthalene	190.0	0.040
Pyrene	29000.0	0.040

Those soils that exceed a 1.0 E-05 cumulative risk in accordance with the above PRGs will be moved to the repository. Soil areas to be removed are identified in the Limited Site Investigation Report dated May 7, 2003. This Site Investigation Report was accepted and approved by DEQ on November 5, 2003. Surface soil areas that do not meet the PRGs are shaded in the Surface Soil Sampling Data Summary, Table 5-2 and shown in blue on Figure 5-1.

Table 5-2 Surface Soil Data Summary Table

Sample ID Number	Sample Date	Sample Collector	Sample Type (grab/comp)	Pentachlorophenol mg/kg (wet)	Acenaphthene mg/kg (wet)	Anthracene mg/kg (wet)	Benzo(a)pyrene mg/kg (wet)	Benzo(b)fluoranthene mg/kg (wet)	Benzo(k)fluoranthene mg/kg (wet)	Benzo(a)anthracene mg/kg (wet)	Benzo(g,h,i)perylene mg/kg (wet)	Chrysene mg/kg (wet)
PS-120	5/23/01	DEQ	Comp	15,200	ND	ND	ND	*	ND	ND	0.150	0.165
PS-170	5/23/01	DEQ	Comp	290,000	ND	ND	ND	*	ND	ND	ND	ND
PS-220	5/23/01	DEQ	Comp	2,060	ND	0.065	0.613	*	0.176	0.200	0.170	0.121
PN-270	5/23/01	DEQ	Comp	ND	ND	ND	ND	*	ND	ND	1.200	1.140
PS-320	5/23/01	DEQ	Comp	ND	ND	ND	ND	*	ND	0.770	ND	2.580
PN-370	5/23/01	DEQ	Comp	ND	ND	ND	ND	*	ND	0.220	ND	0.560
PV School	5/23/01	DEQ	Grab	ND	ND	ND	ND	*	ND	ND	ND	ND
PN-320 Grab	5/23/01	DEQ	Grab	1,100	ND	ND	ND	*	ND	ND	ND	ND
PN-North Grab	5/23/01	DEQ	Grab	ND	ND	ND	ND	*	ND	ND	ND	0.105
PV-10 School Grab	5/23/01	DEQ	Grab	ND	ND	ND	ND	*	ND	ND	ND	ND
PP01GS	8/20/01	EPA	Grab	8,000	*	ND	0.640	*	ND	ND	*	4.080
PP02GS	8/20/01	EPA	Grab	44,000	*	0.063	0.580	*	0.280	0.670	*	4.370
PP03GS	8/20/01	EPA	Grab	600,000	*	ND	ND	*	ND	ND	*	ND
PP04GS	8/20/01	EPA	Grab	ND	*	ND	ND	*	ND	ND	*	ND
PP05GS	8/20/01	EPA	Grab	44,000	*	ND	ND	*	ND	ND	*	ND
PP06GS	8/28/01	EPA	Grab	230,000	*	ND	ND	*	ND	ND	*	ND
TP04GS	8/28/01	EPA	Grab	270,000	*	*	*	*	*	*	*	*
TP05GS	8/28/01	EPA	Grab	ND	*	*	*	*	*	*	*	*
TP06GS	8/28/01	EPA	Grab	190,000	*	*	*	*	*	*	*	*
TP08GS	8/28/01	EPA	Grab	38,000	*	*	*	*	*	*	*	*
SC-1	10/22/02	QE	Comp	21,500	0.021	0.119	0.214	0.239	0.214	0.760	0.086	0.754
SC-2	10/22/02	QE	Comp	4,890	ND	0.014	0.012	0.031	0.019	0.014	0.027	0.053
SC-3	10/22/02	QE	Comp	160,000	ND	0.032	ND	0.066	ND	ND	0.066	0.132
SC-4	10/22/02	QE	Comp	3,090	ND	ND	0.012	0.027	0.013	ND	0.021	0.052
SC-5	10/22/02	QE	Comp	12,900	0.014	0.005	ND	0.013	ND	0.013	0.012	0.059
SC-6	10/22/02	QE	Comp	110,000	0.132	0.279	ND	0.068	0.028	0.141	0.026	ND
SC-7	10/22/02	QE	Comp	11,100	ND	0.013	ND	0.017	0.010	ND	0.015	0.023
SC-8	10/22/02	QE	Comp	24,000	ND	0.042	1.670	ND	1.720	0.029	ND	0.119
LL1-GS	10/23/02	QE	Grab	75,100	ND	ND	1.670	ND	ND	ND	1.300	1.640
LL2-GS	10/23/02	QE	Grab	41,500	ND	ND	ND	ND	ND	ND	ND	ND
CS1-GS	10/23/02	QE	Grab	240,000	10.500	3.830	ND	ND	ND	2.070	ND	7.320
CS2-GS	10/23/02	QE	Grab	570,000	ND	6.090	ND	ND	ND	ND	ND	2.460
CS3-GS	10/23/02	QE	Grab	790,000	2.050	30.500	ND	1.310	1.860	ND	ND	3.390
CS4-GS	10/23/02	QE	Grab	1,100,000	1.300	21.800	7.600	10.900	24.600	11.300	4.440	24.600
[illegible]***	8/29/01	EPA	Grab									
[illegible]***	8/29/01	EPA	Grab									
[illegible]***	8/29/01	EPA	Grab									
[illegible]	8/29/01	EPA	Grab									
Average				203,445	0.667	2.136	0.394	1.473	0.831	0.913	0.341	3.277
Std. Dev.				381,212	4.202	10.140	2.541	3.241	4.380	3.076	1.348	10.378
Upper 95% CI				336,255	2.504	5.734	1.085	4.743	3.134	2.794	0.681	5.180
Industrial PRG				9.00	29000.00	100000.00	0.21	2.10	21.00	2.10	**	210.00

* Compound not analyzed

** No PRG

Soil from the yard will be removed to a depth of 6-12 inches below grade and moved to a temporary stockpile area. Soil will be removed to a greater depth if visual determination at 6-12 inches of depth reveals staining or odor. Proposed soil removal locations and areas are shown in Figure 5-1.

A temporary soil stockpile area will be established in the yard within the AOC. The stockpiled soil will be placed on 5-mil polyethylene sheeting. The area will be elevated and free of storm water run-on or runoff. The stockpile will be covered with 5-mil polyethylene sheeting when not actively working.

5.2.1. Surface composite Sampling Procedures

Soils are first visually screened for presence of discoloration and staining. A 160-foot transect is centered on the sample location. Orientation of the transect is as shown on the sampling site plan. Eight sub samples will be collected at 20 foot intervals along the transect for a total of eight sub samples. Sub samples will be collected using a stainless steel spoon, being sure to collect equal amounts of soil in all sub samples. These sub samples are then combined into a stainless steel bowl or polyethylene bucket and thoroughly homogenized with a stainless steel spoon.

The homogenized composite sample is then collected and placed into glass soil jar equipped with a Teflon lined lid. The jar is then immediately placed on ice in a cooler. Samples will be transported to the laboratory under chain of custody and analyzed, as in the Limited Site Investigation, using EPA Method 8270-SIM.

5.2.2. Temporary Stockpiled Soil from the Pole Yard

The total volume of pole yard soil is estimated to be 600-700 cubic yards. The actual volume of soil will depend on the number of removal iterations to be performed. Once confirmation sampling reveals that removal of soil in the pole yard is complete, the volume of soil will be estimated in preparation for placement in the repository. The available repository volume (less any additional volume created with the footing and perimeter stem wall) is shown in the Table 5-2 below.

Figure 5-2 Available Repository Volumes

Area Description	Length (ft.)	Width (ft.)	Depth (ft.)	Volume (ft^3)	Volume (yd^3)
Dip Tank Area (below ground surface)	96	8	8	6144	227.6
Pump Vault	10	12	9.75	1170	43.3
AST Vault	8.5	11.5	6.75	659.8125	24.4
Piping Vault at Center of Tank	8	7.5	11	660	24.4
Low Areas North of Dip Tank (estimated)	25	60	1	1500	55.6
			Total Volume Available	10133.8	375.3

The areas to be removed and the estimated volumes of soil to be removed area summarized in the Table 5-3 below. The table also incorporates a 30% swell factor as a safety margin. In reality, it is anticipated that 90-95% of the swell will be eliminated during compaction of the soil into the repository.

Table 5-3 Estimated Pole Yard Soil Volumes

Area Description	Length (ft.)	Width (ft.)	Depth (ft.)	Volume (ft^3)	Volume (yd^3)
PY02SS	50	15	1	750	27.8
PY03SS	50	15	1	750	27.8
PY06SS	30	15	1	450	16.7
P12	100	15	1	1500	55.6
P13	100	15	1	1500	55.6
SC3	160	15	1	2400	88.9
SC6	160	15	1	2400	88.9
SC8	160	15	1	2400	88.9
TP04SS	30	12	1	360	13.3
TP06SS	30	12	1	360	13.3
LL1	30	12	1	360	13.3
		Total Net Volume Generated		13230	490
		Total Gross Volume Generated (includes 30% swell)		17199	637
		Available Repository Volume Available		10134	375
		Total Volume Needed for Repository		7065	262

5.3. Repository Cap Design

The repository cap design will include the following elements to cover the dip tank and isolate the soils placed within the repository. The metal roof structure will be considered the upper liner of the repository. The concrete floor of the building will be considered the secondary liner of the repository. Construction of the repository and the liners are outlined below.

1. Remove the elevated cap roof and catwalk on the north side of the dip tank.
2. Cut off poles at grade on south side of the catwalk.
3. Excavate and cut the above grade portion of the steel dip tank for disposal.
4. Dismantle the interior shop building within the treatment building, while retaining the concrete slab floor.
5. Remove/dispose and dismantle tank pad #1 and associated deteriorated log cribbing.
6. Fill the pipe chase beneath center of dip tank with a slurry of controlled density fill (CDF). CDF is a slurry mixture of pea gravel with one sack of cement per yard.
7. Place and compact (95% maximum proctor density) pole yard soils into the dip tank, pump room, tank vault and access vault.
8. Install new vertical poles (7) in area where shop support was removed.
9. Duplicate the remaining pole building to the south to cover the dip tank, pump room tank vault etc.
10. Install a roof cap constructed from 2"x6" rafters 24" OC with 2"x6" perlins 24" OC where new and existing roof structures meet.
11. Construct a concrete footing and stem wall around the entire pole structure-the height to be determined by the required volume needed to contain the pole yard soil volume. Footing to be placed on undisturbed native soil with 32" of cover over the top of footing. Footing and stem wall to be placed outside of the vertical pole structure.
12. Place and compact remaining pole yard soils within the concrete perimeter. Based on the above calculations, approximately 260 cubic yards of capacity will be needed.
13. Pour a reinforced concrete floor in the pole building.
14. Frame exterior end walls of the AOC building using 2"x6" conventional framing methods.

15. Frame sidewalls using 2"x6" perlins attached to the vertical pole structure.
16. Install roll-up doors (4 each) on both ends of the building for access.
17. Install metal sheeting on the exterior walls to complete the AOC enclosure.

Detail drawings of the building modifications are included in the Appendix.

5.4. Closure Schedule

Closure is anticipated to follow the schedule below:

Task	Completion Time (total days)
Cleanup pole yard soil and confirmation sampling	0-15
Demolish unnecessary structures	16-55
Place and compact yard soils into tank and vaults	56-85
Construct concrete footing, stem wall and slab	86-95
Construct new roof and perimeter wall structures	96-120
Install perimeter metal sheeting and roof sheeting	121-140
Install end doors and final grading around building	141-160

5.5. Certification of Closure

According to 40CFR 264.115, within 60 days of the completion of the closure of AOC repository, certification will be provided by a registered professional engineer. This certification will be provided by registered mail to the Regional Administrator. Certification will assure that the closure was performed according to the approved closure plan. Any significant variations from the approved closure plan will be noted and justified.

A Final Interim Measures report will be prepared that will document as-built conditions. The final report will include quality assurance, quality control measures, testing results and inspection documentation and photographic records.

6. SECURITY PROCEDURES

Regulations, 40 CFR Section 264.14, require that security procedures or equipment be in place at the facility to prevent uncontrolled or unauthorized entry to the facility. The AOC is defined to be a locked and secure building approximately 90-feet by 126-feet. Access to the facility is only allowed by authorized personnel with keys to the building. The building will be locked at all hours of the day unless staffed by authorized personnel.

The perimeter of the property is signed according to 40 CFR Section 264.14. Signs should read "Danger Unauthorized Personnel Keep Out". Location of the signs should focus on the former cross-site access between town and the school and any other routes of trespass and access. Signs will also be posted to notify authorized entry to the property.

The above closure and security provisions assure that unauthorized persons cannot access the AOC. The above closure and security provisions assure that the unknown persons or livestock will not contact the stored wastes within the AOC.

7. INSPECTION PROCEDURE

Inspection of the facility will be performed in accordance with 40 CFR 264.15. The purpose of the inspections is to maintain security of the AOC, maintain structural integrity of the AOC building cap and maintain notification and signage of the site. Inspection procedures for specific elements are described in the following sections. An inspection checklist is shown in Figure 7-1.

7.1. Security Access to the AOC Building

The integrity of the access door and the perimeter of the building shall be inspected to identify damaged hinges, locks or other building elements. The metal skin of the building should be carefully inspected to ensure that integrity of the skin has not been compromised. Any damaged components must be replaced or repaired

7.2. Roof and Wall Condition

The roof structure is the primary leak barrier to the AOC. The integrity of the roof is critical to eliminate any leakage into the AOC. The roof should be inspected for any missing roofing, loose roofing or missing roof anchorage.

Integrity of the wall skin is critical to the security of the AOC and the potential entrance of snow, rain or blowing debris. The vertical skin sections are screwed to horizontal perlins. Inspect the panels to identify any loose sections or missing screws. Any missing roofing must be replaced and any loose roofing or wall material shall be secured.

7.3. Floor Condition

Inspect the condition of the floor for cracks or adverse settlement. If the roof integrity has been compromised, determine if precipitation has entered the building. Any areas of water should be noted and reported immediately. Any settlement or cracking in the flooring will be repaired with an elastomeric caulk.

7.4. Monitoring Well Conditions

Monitoring wells MW1 through MW3 have been completed with 8" flush monuments. The well monuments are protected by traffic rated manhole frame and lids set in concrete grade rings. Each well is capped with a 2" j-plug and locked.

MW4 through MW6 are completed with elevated monuments. These monuments consist of a 6" steel well casing set in concrete. The 6" steel casing is equipped with a locking lid. The 2" PVC wellhead inside of the casing is further locked with a locking j-plug.

The security and integrity of the monitoring well system is critical to the sampling and data collection program. Any compromised condition should be noted in the inspection program and corrected as needed. Any damaged well monuments must be removed and or replaced in order to maintain the integrity of the wells.

7.5. Perimeter Signage

The perimeter of the site is to be signed to eliminate access to the site by unauthorized personnel. The perimeter of the site should be walked to identify any damaged or missing signs. Any missing signs shall be replaced.

7.6. Training

After closure of the facility, a site manager will be designated to perform the scheduled site inspection activities. The engineer will train the site manager to carefully inspect, evaluate the conditions and make necessary repairs to the facility. The training will be specifically designed to address the above tasks and ensure that any corrective measures are immediately taken.

7.7. Emergency Contacts

Should the inspection program identify any significant problems, the inspector should immediately contact one or both of the following:

Reid Tinling
Poles, Inc
PO Box 12416
Scottsdale, AZ 85267
480 515 0356
602 359 4229 (cell)

James S. De Smet, PE, PG
Quantum Engineering
S. 2641 Silver Beach Loop
Coeur d'Alene, ID 83814
208 765 2308 (office)
208 661 5200 (cell)

Table 7-1 Facility Inspection Schedule

Item	Frequency of Inspection	Types of Problems
AOC Security	Weekly	Missing or damaged locks, damaged or deteriorating hinges or other evidence of unauthorized entry
Roof and Wall Conditions	Monthly	Missing roof or wall sections, missing anchor screws, loose or damaged metal roofing or siding
Floor Condition	Monthly	Open cracks or evidence of settlement or ponded water
Monitoring Well Condition	Each Monitoring Event	Missing manhole lids, damaged bollards, missing elevated well head caps, leaning bollards or well casings, stains or sources of contamination around well head
Perimeter Signage	Monthly	Missing or damaged signs, new routes or signs of ingress or egress from the site

Figure 7-1 Inspection Check List

Inspector Name/Title_____ Date of Inspection_____

Time of Inspection_____

Item	Procedure	Satisfactory	Unsatisfactory	Comments
Security Access to AOC Building	Inspect access doors for damage, deterioration or signs of entry			
Roof and Wall Condition	Inspect for loose or damaged roofing and wall sections			
Floor Condition	Inspect for signs of open cracking and or evidence of water or leakage			
Monitoring Wells	Inspect for signs of impact, damage to bollards or to well heads. Inspect for signs of vandalism or staining around well			
Perimeter Signage	Inspect for damaged or missing signs			

Nature of RepairsNeeded_____

Additional Comments_____

Signature_____

8. PREPAREDNESS AND PREVENTION

According to 40 CFR 264 Subpart C, all facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

Since this facility no longer handles hazardous waste, the threat of fire, explosion or accidental release from the facility is extremely remote. As designed, the entire building could burn (with the exception of metal siding and roofing) without any potential for release. Any potential threats to the integrity of the facility will be identified in the inspection program.

9. FINANCIAL REQUIREMENTS

9.1. Closure Cost Estimate

The estimated cost for closure of the site is summarized in the Table 10-1 below.

Table 9-1 Closure Cost Estimate

Quantum Engineering and Geologic Consulting

South 2841 Silver Beach Road, Coeur d'Alene, Idaho 208 765 2508 (phone) 208 667 2355 (fax)

ENGINEERS OPINION OF PROBABLE COST

DATE: 10/19/04

PROJECT: Poles, Inc

DESCRIPTION: Closure Costs

TO: Reid Tinling

OWNER PROJ. NO: PROJ NO: 218

ITEM NO	DESCRIPTION	SCHEDULE OF VALUES QUANT	UNIT	UNIT PRICE	TOTAL EST. COST
	Pole Yard				
1	New Pole Building Construction	1.0	ls	$20,000.00	$20,000.00
2	Footing/stemwall and Slab Construction	1.0	ls	$30,000.00	$30,000.00
3	Removal of track/above grade portion of dip tank	1.0	ls	$2,000.00	$2,000.00
4	Control density fill (pipe vault)	20.0	cy	$60.00	$1,200.00
5	Concrete pad disposal (750 cu ft. @130 lb/cu ft)	25.0	Tons	$75.00	$1,875.00
6	Disposal of tank and tracks	35.0	tons	$75.00	$2,625.00
7	Hauling of concrete/building@ $60/hour	2.0	days	$600.00	$1,200.00
8	Laborer @ $20/hour	75.0	md	$160.00	$12,000.00
9	Rollup Doors w/ installation	4.0	ea	$1,200.00	$4,800.00
		SUBTOTAL CONSTRUCTION COST			$75,700.00
	AOC Containment				
1	Stockpiling soil from yard	15.0	md	500	$7,500.00
2	Temporary cover	1.0	ls	200.00	$200.00
3	Confirmation Samples	26.0	ea	350.00	$9,100.00
4	Replacement fill in yard/building	1,500.0	cy	15.00	$22,500.00
5	Laborer @ $15/hour	15.0	md	120.00	$1,800.00
6	Confirmation Sampling @$400/trip	6.0	trips	400.00	$2,400.00
7	Placement and compaction of contaminated soil	30.0	md	500.00	$15,000.00
8	Excavator/compactor rental	20.0	days	400.00	$8,000.00
9	Compaction testing	5.0	days	300.00	$1,500.00
		SUBTOTAL REMEDIATION COST			$68,000.00
	TOTAL COST FOR YARD REMEDIATION AND AOC CONTAINMENT				$143,700.00
	COST TO DATE FOR CHARACTERIZATION AND MONITORING WELLS				$150,593.17
	Closure Plan Design				$7,500.00
	Part B Permit				$20,000.00
	Topographic Survey				$4,500.00
	Risk Assessment				$7,500.00
	Pole Yard Assessment/Sampling				$4,000.00
	Pole Yard Assessment Reporting/Documentation				$2,500.00
	Cap/Cover Field Engineering/Documentation				$2,500.00
	TOTAL ENGINEERING AND SURVEYING				$48,500.00
	TOTAL ESTIMATED COSTS				$342,793.17

9.2. Post Closure Cost Estimate

A summary of the post closure costs is listed in the table 9-2 below.

Table 9-2 Summary of Post Closure Present Value Costs

Quantum Engineering and Geologic Consulting

South 2641 Silver Beach Road, Coeur d'Alene, Idaho 208 765 2305 (phone) 208 667 2868 (fax)

ENGINEERS OPINION OF PROBABLE COST

DATE: 10/18/04

PROJECT: Poles, Inc.

DESCRIPTION: Present Value of Closure Costs

TO: Reid Tinling

OWNER PROJ. NO.: PROJ. NO.: 218

ITEM NO.	DESCRIPTION	SCHEDULE OF VALUES DURATION	UNIT	PRESENT UNIT VALUE	TOTAL EST. COST
	Present Value of Closure Shortages:				
1.	Quarterly Laboratory Sampling for 2 years	2.0	yr	6,850.00	$13,700.00
2.	Quarterly sampling and yearly reporting for 2 years	2.0	yr	5,500.00	$11,000.00
3.	Semi-annual Laboratory sampling for 28 years	28.0	yr	3,850.00	$107,800.00
4.	Semi-annual sampling and yearly reporting for 28 years	28.0	yr	3,250.00	$91,000.00
5.	Year 10 renewal application at 10K PV	1.0	ea	8,000.00	$8,000.00
6.	Year 20 renewal application at 10K PV	1.0	ea	8,000.00	$8,000.00
7.	Monthly Insp. and Doc. @ 4hours/month, $25/hr	30.0	yr	1,000.00	$30,000.00
8.	30-year Closure Application	1.0	ea	8,000.00	$8,000.00
9.	Yearly maintenance costs	30.0	yr	100.00	$3,000.00
					$280,500.00
	TOTAL ESTIMATED COST				
	TOTAL ENGINEERING AND SURVEYING				
	TOTAL ESTIMATED COSTS				$280,500.00

10. POST CLOSURE NOTIFICATION

According to 264.119, no later than 60 days after the certification of the closure of AOC, notification will be provided to Bonner County regarding the nature and volume of hazardous waste contained in the AOC.

An area containing the AOC will be defined by a legal survey. The record of survey will be filed with the county and recorded with the property deed.

11. POST CLOSURE GROUNDWATER MONITORING PLAN

Post closure groundwater contamination will be evaluated using the existing network of six monitoring wells. Groundwater on the site will be characterized for PCP/PAH compounds. Sampling will be performed on a quarterly basis for the first 2 years, semiannual for the next 28 years.

Dioxins/furans will be monitored in MW4 on an annual basis.

All of the above parameters are immiscible in water and relatively insoluble in water. The constituents are extremely stable, adsorb strongly to the aquifer matrix and will not migrate rapidly in the vadose zone or the aquifer. The waste constituents are stable and not susceptible to degradation or reaction with other constituents.

Groundwater samples will be analyzed for PCP/PAH using EPA Method 8270 GC/MS with Selective Ion Monitoring (SIM). Dioxins/furans will be analyzed using EPA Method 8290. Minimum detection limits for the parameters are listed in the table below.

Table 11-1 Analytical Procedures and Minimum Detection Limits

Parameter	Min. Detection Limit (µ/L)
Pentachlorophenol	1.00
Acenaphthene	0.10
Anthracene	0.10
Benzo(a)pyrene	0.10
Benzo(b)fluoranthene	0.10
Benzo(k)fluoranthene	0.10
Benzo(a)anthracene	0.10
Chrysene	0.10
Fluorene	0.10
Fluoranthene	0.10
Naphthalene	0.10
Pyrene	0.10
Parameter	**Min. Detection Limit (pg/L)**
2,3,7,8-TCDD	1.36
1,2,3,7,8-PeCDD	2.08
1,2,3,4,7,8-HxCDD	2.97
1,2,3,6,7,8-HxCDD	3.23
1,2,3,7,8,9-HxCDD	2.90
1,2,3,4,6,7,8-HpCDD	1.74

OCDD	6.49
2,3,7,8-TCDF	1.23
1,2,3,7,8-PeCDF	1.79
2,3,4,7,8-PeCDF	1.72
1,2,3,4,7,8-HxCDF	1.04
1,2,3,6,7,8-HxCDF	1.26
1,2,3,7,8,9-HxCDF	1.34
2,3,4,6,7,8-HpCDF	1.51
1,2,3,4,6,7,8-HpCDF	1.18
1,2,3,4,7,8,9-HpCDF	1.34
OCDF	3.98

11.1. Groundwater Sampling Collection Techniques

11.1.1. Water Level Measurements

Prior to sampling, the static water level in the well must first be determined. This measurement is done using a Solinst water level probe. The probe is first turned on and a battery check is performed. The probe is lowered into the well and the water level is taken by measuring to the north side of the well casing. All measurements will be taken to the mark on the north side of the casing to provide consistency of measurements. The date and depth are recorded in the field notes.

Static water surface levels will be rendered to static water surface elevations and then plotted on the site plan to generate a groundwater surface contour map. This contour map will be checked to confirm and assure that groundwater flow direction is consistent with that identified to date.

11.1.2. Purging and Bailing of Wells

Using the well diameter and depth of water column, calculate the volume of water in the well casing. The well is to be purged of at least three well volumes of water prior to sample collection.

Bailing of small 2" diameter wells is done with a 1 7/8" diameter Teflon bailer or disposable polyethylene bailer. For reusable bailers, the bailer is disassembled and decontaminated in a Liquinox wash and double rinsed in deionized water. Bailing line is discarded after each well has been purged and sampled.

Samples for PCP/PAH and dioxin/furans shall be collected in laboratory cleaned amber glass 1-liter bottles. The sample containers shall be filled by decanting from the bottom of the bailer.

Sample containers are to be placed on ice in an insulated cooler and transported to the laboratory under custody. PAH/PCP is to be performed using EPA Method 8270-SIM. Dioxin/furans are to be analyzed using EPA Method 8290

11.1.3. Sampling Preservation and Handling

Samples will be collected in laboratory certified amber one-liter glass bottles. Sample bottles will be filled from the bailer, sealed and placed on ice in a cooler. Field preservation of samples for PCP/PAH is not required. Samples will be delivered to the laboratory under chain of custody within 24 hours of collection. The chain of custody will accompany the samples to the laboratory. Samples will be hand delivered to the laboratory and shipping will not be required.

11.2. Reporting

Status reports will be provided on an annual basis. The reports will include trend data tables for each of the monitoring wells, static water level data, groundwater contour mapping and laboratory data reports. A narrative will be provided describing activities performed and any aberrations from the conditions of the permit.

Data will be summarized in tables as presented in this report.

12. INTERIM CLOSURE MONITORING PLAN

Interim closure monitoring will be performed as described in Section 12, Post Closure Monitoring Plan.

13. REFERENCES

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